NINTH STREET VIADUCT
(Olympic Boulevard Viaduct)
(Olympic Boulevard Bridge)
Spanning the Los Angeles River at Olympic Boulevard
Los Angeles
Los Angeles County
California

HAER No. CA-177

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
National Park Service
Western Region
Department of the Interior
San Francisco, California 94107

HAER
CAL
19-LOSAN,
78-

HISTORIC AMERICAN ENGINEERING RECORD

NINTH STREET VIADUCT(OLYMPIC BOULEVARD VIADUCT, OLYMPIC BOULEVARD BRIDGE)

HAER No. CA-177

Location: Olympic Boulevard between Rio Vista Avenue and Santa Fe Avenue, City of Los Angeles, County of Los Angeles, California

USGS Los Angeles Quadrangle, 7.5'
UTM Coordinates 11 387055 3764081

Period of Construction: 1925

Engineer: City of Los Angeles Chief Engineer Merrill Butler

Builder: North Pacific Construction Co.

Present Owner: City of Los Angeles
200 North Main Street
Los Angeles, CA 90012

Present Use: Connector street for inner City industrial/commercial and residential travel over the Los Angeles River.

Significance: Olympic Boulevard Viaduct (formerly the Ninth Street Viaduct) is one of the twelve significant historic bridges over the Los Angeles River. Ninth Street was reconfigured and renamed Olympic Boulevard in honor of the 1932 Olympic Games held in Los Angeles. Olympic Boulevard Viaduct was built as part of the City Beautiful Plan's of the early 1900's. City Beautiful Plans were inspired by the civic architecture of Paris and Rome, which sought to beautify United States cities by constructing grand civic monuments, incorporating both building and public works projects.

Report Prepared by:

Morag A. Logan
Environmental Associate I
City of Los Angeles
650 South Spring Street, Suite 600
Los Angeles, CA 90014-1415

Date: May 28, 1996

I. DESCRIPTION

The Olympic Boulevard Viaduct (formerly known as the Ninth Street Viaduct) over the Los Angeles is one of ten City of Los Angeles historic bridges for which design has been completed for seismic retrofit. Olympic Boulevard Viaduct is one example of the viaduct and bridge designs created by the Bureau of Engineering of the City of Los Angeles in order to develop a City Beautiful plan in the early 1900's. City Beautiful plans were inspired by the civic architecture of Paris and Rome, and these plans sought to beautify America's cities by constructing grand civic monuments, both buildings and public works projects.[1]

One of the twelve significant historic bridges over the Los Angeles River, the Olympic Boulevard Viaduct is a reinforced concrete, open spandrel structure with 3 spans across the Los Angeles River and additional spans across the tracks of the Atchison, Topeka and Santa Fe Railroads (Figure 1 and 2). The bridge is 1422 feet long; the roadway is 56 feet wide with four lanes for traffic and two-5 foot sidewalks. The river portion of the bridge consists of two-88 and one-90 foot arch spans. Approach spans are beam and column, generally 34 feet center to center of supports.[2]

Olympic Boulevard Viaduct is a main artery which connects the Boyle Heights neighborhood with downtown Los Angeles. The west abutment and 20 evenly spaced bents make up the west side of the bridge; two abutments and two piers make up the central portion of the bridge over the Los Angles River; and the east abutment and 12 evenly spaced bents make up the east side of the bridge. Each of the Olympic Boulevard bents consist of four square-shaped, unadorned columns. The Department of Street Maintenance has constructed and maintains an office under the west side of the bridge adjacent to the abutment and continuing to Bent 30, which will remain after the seismic retrofit.

II. ARCHITECTURAL AND ENGINEERING INFORMATION

Olympic Boulevard Viaduct was designed by City of Los Angeles engineer Merrill Butler, who was the significant designer and Engineer of Bridges for the City of Los Angeles from 1923 to 1963. Olympic Boulevard Viaduct is considered a major example of Merrill Butler's work. Mr. Butler was instrumental in designing many of the historic bridges over the Los Angeles River to complete the City Beautiful Plan of the Los Angeles Municipal Art Commission.

Olympic Boulevard Viaduct is the one of the twelve significant historic bridges built between 1910 and 1932, and is designed in classic style. As noted in the document *Seismic Retrofit of Olympic Boulevard Bridge*, "(o)n September 14, 1924, the Southwest Builder and Contractor reported that the plans approved for the viaduct featured classical design, the structural elements combining "Doric and Corinthian orders". Above the three-arch river span, the bridge's

character-defining features are massive, four sided columns. Their stepped plinths, set on capped rectangular concrete bases, are ornamented with acanthus scrolls."[3]

"Above the plinths the columns, slightly attenuated, culminate in engaged capitals with notified Doric triglyphs and metopes. Above this ornamentation a wide flaring bracketed cap supports four-armed light fixtures of decorative cast stone bearing bronze lanterns with divided panes. A round pole continues from a fluted stone bowl at the center of the fixture; at the pole's apex are concentric rings and a ball finial. The viaduct approaches are lighted by double-light fixtures whose fluted columns have less elaborated plinths mounted on concrete bases, the two-arm fixtures carry similar lanterns and ball finials atop the poles."[3]

The Olympic Bridge's handrail was an elaborate combination of elements: curved acanthus leaves placed in open rondel separated by planted balusters (Figure 3). This historic handrail had been replaced in 1955 with a modern steel, open-rail barrier.[3] Mitigation measures proposed for the current seismic retrofit project include the replication of the historic handrail design and the replication of missing light fixtures and restoration of existing light fixtures.

III. HISTORICAL INFORMATION

City Beautiful plans, popular in the 1920's and 1930's, were an attempt to make American city monuments, civic buildings, and public works structures emulate the architecture of Rome and Paris. The concept of City Beautiful bridges were expressed in Charles Mulford Robinson's 1909 report "The City Beautiful" to the Los Angeles Municipal Art Commission. He chided the City for erecting truss bridges as major river crossings , arguing they are "..about as ugly as they can be. As these are replaced, handsome structures should be substituted...the concrete arch now makes practicable a bridge that is beautiful at no more cost tban the old ugly iron bridge of the railroad type."[1]

In a 1913 article published in *The Architect and Engineer of California*, H. G. Tyrell makes a forceful case for City Beautiful bridges. Mr. Tyrell argued that, as a city grows, bridges will proliferate at major crossings. These many bridges, he wrote, "will stand at almost every water crossing, either as an honor or as a shame to their originators." He wrote that the bridges should be treated as public monuments, like post offices or city halls, and decorated in the same manner. "The proper role for the beautifying of public works is to adom those structures which are of greatest public service." H.G. TyrelI thought the adornments should be Beaux Art Classicism set forth in grand fashion in the 1893 Chicago World's Fair.[1]

Passage of a large bond measure in 1923, made construction of the viaducts possible. City Engineer John Griffin wrote that the viaducts were constructed within the City of Los Angeles to "excite favorable comment from visitors who enter and leave the City by the railways," which

pass under most of these bridges, and "...to raise the status of Los Angeles as an enterprising, properly developed city." When the viaducts were completed in 1932, John Griffin reiterated the intent of the program and pointed to his success in achieving that. "The viaducts themselves. have taken their place among the sightly structures of the city."[1]

Ninth Street Viaduct, now known as Olympic Boulevard Viaduct, was constructed in 1925 (Figure 4). City Engineer of Bridges Merrill Butler was credited with the design of this and many of the other City Beautiful plan bridges that were constructed in the 1920's and 1930's. Originally called the Ninth Street Viaduct, the bridge was built to connect Los Angeles with the Boyle Heights region. However, the name of the bridge was changed when Ninth Street was reconfigured and named Olympic Boulevard in honor of the 1932 Olympics, held in Los Angeles.

Ninth Street Viaduct has duplicate commemorative plaques on two of the river abutments four sided columns: the southwest column and the northeast column. The plaques state the following;

DEDICATED
IN HONOR OF
GASPAR DE PORTOLA
FIRST GOVERNOR OF CALIFORNIA
1769

A likeness in profile of Gaspar De Portola is located to the left of the dedication.

Olympic Boulevard Viaduct has been determined to be eligible for the National Register of Historic Properties. Olympic Boulevard Viaduct is eligible under Criterion A as an important element in the development of the Los Angeles transportation system, linking the historic neighborhood of Boyle Heights with downtown Los Angeles. Trolleys were originally part of the Olympic Boulevard Viaduct as evidenced by the trolley wire supports still present on the light standards (Figure 3). "The Viaduct, in conjunction with its neighboring river spans, permitted an uninterrupted flow of traffic from outlying areas, commercial enterprises, and manufacturing plants east of Downtown to the City's commercial center and rapidly developing suburbs, without impeding or being impeded by the flow of the railroad traffic or the river barrier."[3]

Olympic Boulevard Viaduct is also eligible for the National Register of Historic Places under Criterion C as one of the series of City Beautiful bridges across the Los Angeles River. "Bridge Historian Steve Mikesell states in his monograph Historic Highway Bridges of California that the "success and inventiveness" of the Los Angeles engineers in concrete bridge design produced,"some of the most beautiful and substantial historic bridges in California....[T]he Los Angeles Bureau of Engineering did much to define the appropriate design standards for concrete bridges in urban settings."[3] The Olympic Boulevard Viaduct is a fine example of a reinforced concrete bridge, for which the State of Califomia is historically noted.

IV. SOURCES

California Department of Transportation, *Historic Highway Bridges of California,* 1990

California Department of Transportation, Arch Bridge Rating Sheet, Ninth Street Viaduct, Bridge #:53C-163

Lee, Portia, Ph. D. Registered Public Historian #547, *Seismic Retrofit of Olympic Boulevard* Bridge over the Los Angeles River, finding of Adverse Effect, April, 1995

V. PROJECT INFORMATION

Seismic retrofit of Olympic Boulevard Viaduct was difficult to design due to the undersized dimensions of the columns in the bents. Replication of the columns would not insure the protection of the bridge during the anticipated design-level earthquake (0.6 g peak bedrock acceleration). Other alternatives would require the enlarging of the columns to such an extent that the present appearance of numerous, thin columns supporting the span would be lost. None of the known alternatives could compensate for the expected forces on the bridge during a design-level quake. As a last resort to seismically retrofit the bridge, infill shearwalls are proposed to be constructed at Bents 3, 6, 10, 15, 18, 21, 24, 27, and 30 (Figure 5).

In addition, infill will be placed between Bents 19, 20, and 21's second and third columns. These infills will be unusual in that the infill will have a longitudinal frame that resembles a window opening (Figure 6). This design was created to limit impacts to the bridge. The original design called for transverse infill shear walls to be constructed between bents 19, 20, and 21. This original proposal would have had a much greater impact on the original bridge design than the new proposed design.

The proposed seismic retrofit of the Olympic Boulevard Viaduct has been determined to have an "Adverse Effect" by the California Department of Transportation. The adverse effect is on the viaducts integrity of design with respect to the qualities of significance under Criterion C. Essential to Olympic Boulevard Viaduct's design is the visual effect of the slender, square-shaped columns supporting the span. Infilling between the columns within the bents and transversely between the bents themselves will effectively "box in" the bridge, and diminish the bridges integrity of design, introducing visual elements that are out of character.[3]

Proposed mitigation for the seismic retrofit is the use of longitudinal frames which resemble window shaped openings to reduce the impact of the transverse infill shear walls between bents 19, 20, and 21. In addition, replication of the removed handrail has been proposed and restoration and rehabilitation of the existing light fixtures will be performed. (Figure 7).

This document has been prepared by the City of Los Angeles in compliance with the National Historic Preservation Act as mitigation for the proposed seismic retrofit of Sixth Street Bridge/Viaduct over the Los Angeles River. The preparer would like to thank the following people for their help:

Jim Doty and Neil Drucker, Environmental Supervisor II's, for their help in compiling and reviewing the necessary information, and
Vicky Komie, Environmental Associate II, for her knowledge of the historic records and data bases required to compile this report.

ENDNOTES

1. California Department of Transportation, *Historic Highway Bridges of California,* 1990

2. California Department of Transportation, Arch Bridge Rating Sheet, Ninth Street Viaduct, Bridge #:53C-163

3. Lee, Portia, Ph. D. Registered Public Historian #547, *Seismic Retrofit of Olympic Boulevard* Bridge over the Los Angeles River, finding of Adverse Effect, April, 1995

FIGURE 1 - VICINITY MAP

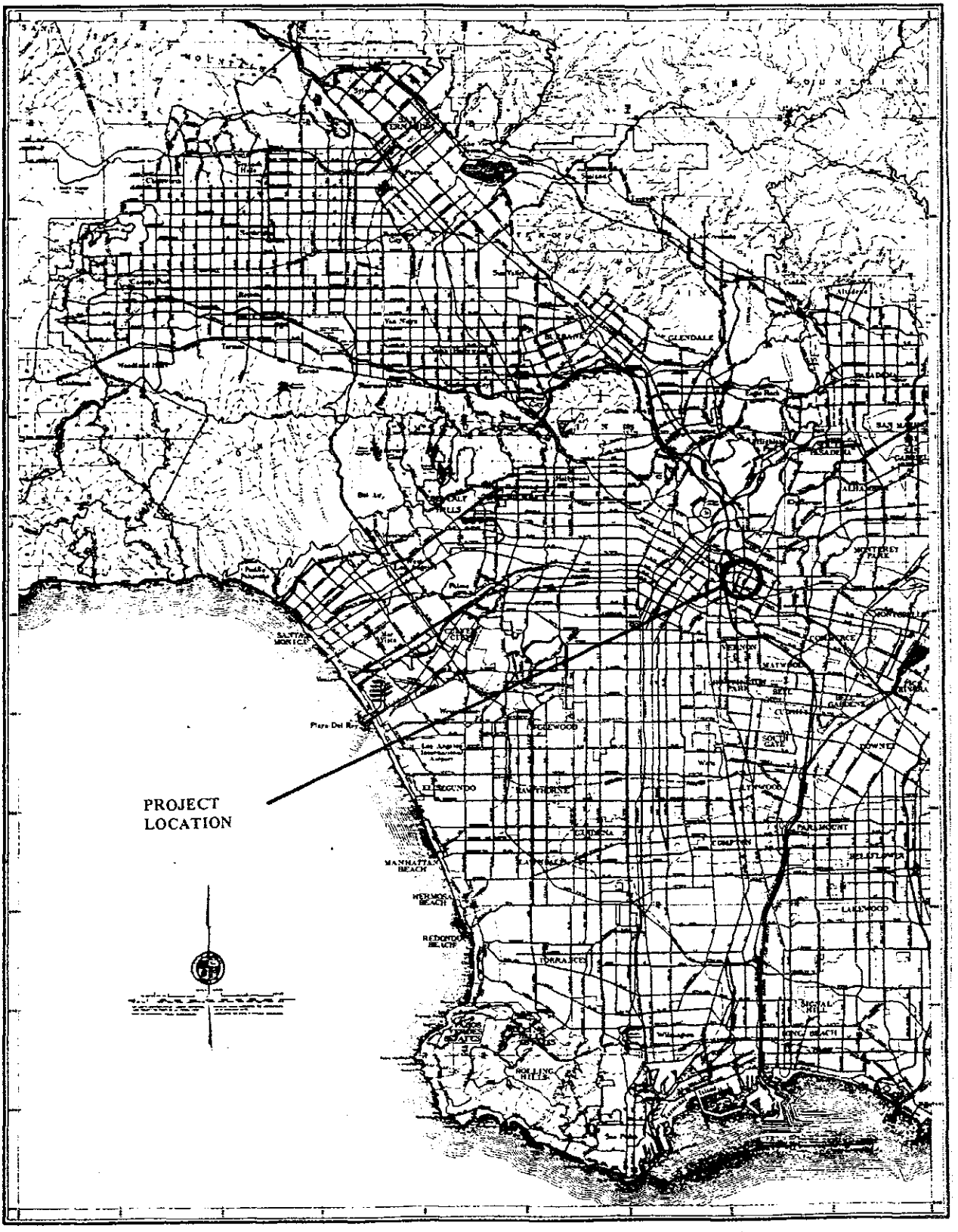

FIGURE 2 - LOCATION MAP

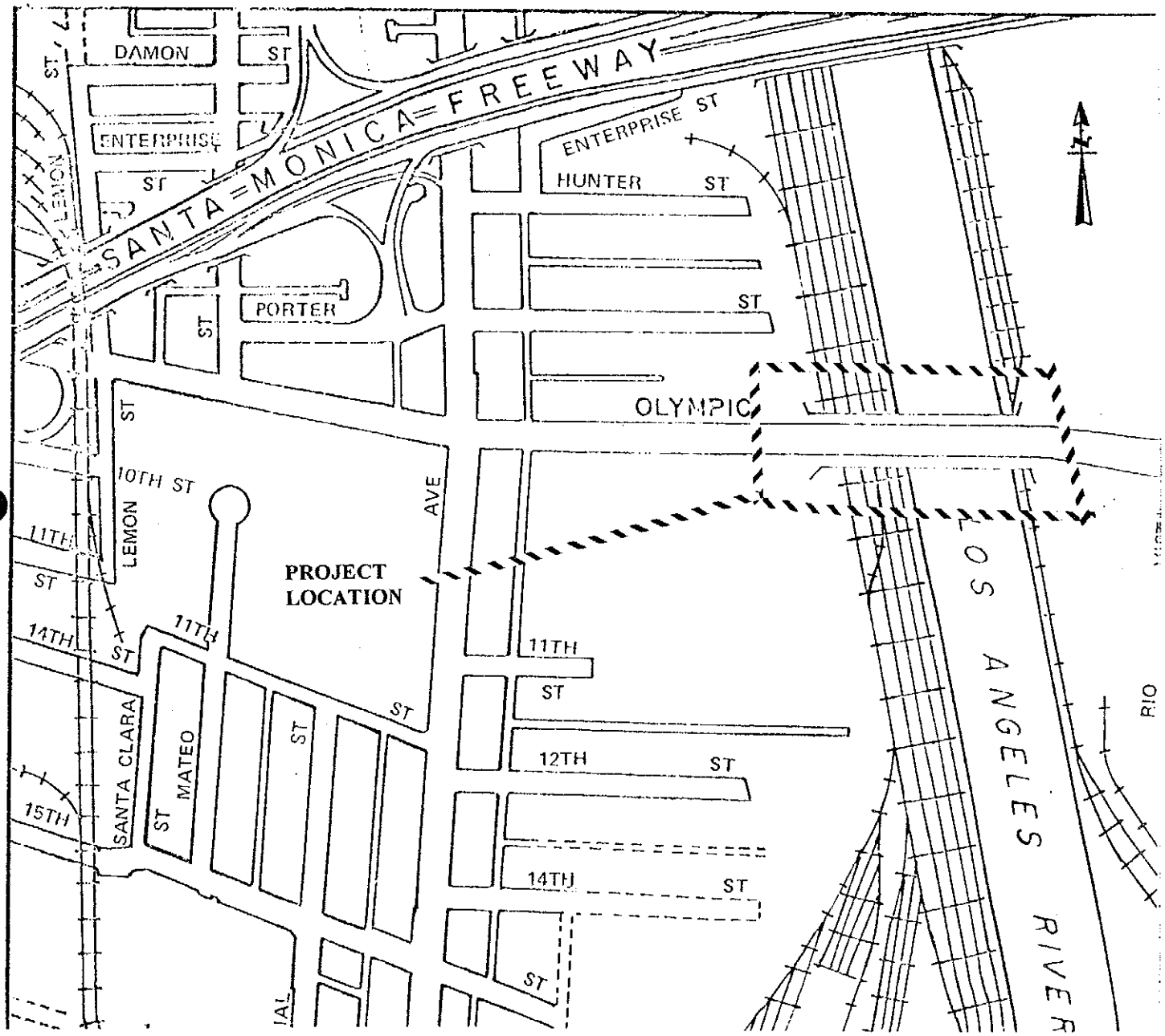

FIGURE 3 - ORIGINAL HANDRAIL AND STREETLAMP WITH TROLLEY WIRE SUPPORT

Some items have been removed from the formal documentation for this structure because:

- the item is registered or otherwise protected under the 1976 Copyright Act as amended and thereby ineligible to enter the public domain as formal HABS/HAER documentation
- the copyright status of the item is not possible to establish due to a lack of sufficient bibliographical information in the formal documentation

These items may include--but are not limited to--photographs, prints, drawings, letters, maps, unpublished manuscripts, photo albums, theses, dissertations, books, and periodicals.

FIGURE 4 - OLYMPIC BOULEVARD BRIDGE SOON AFTER CONSTRUCTION

Some items have been removed from the formal documentation for this structure because:

- the item is registered or otherwise protected under the 1976 Copyright Act as amended and thereby ineligible to enter the public domain as formal HABS/HAER documentation

- the copyright status of the item is not possible to establish due to a lack of sufficient bibliographical information in the formal documentation

These items may include--but are not limited to--photographs, prints, drawings, letters, maps, unpublished manuscripts, photo albums, theses, dissertations, books, and periodicals.

FIGURE 5 - GENERAL PLAN SHEET AND ELEVATION

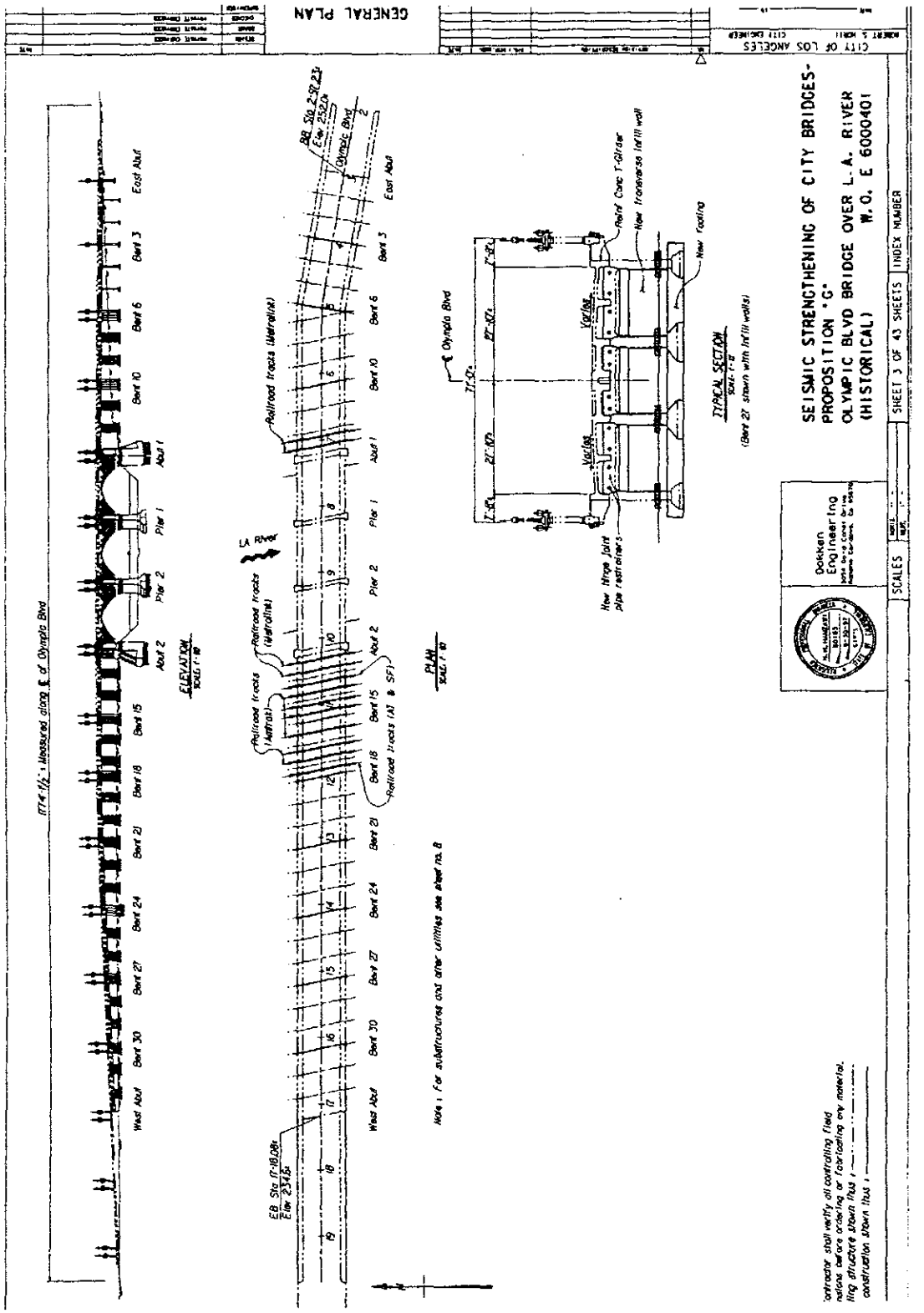

FIGURE 6 - INFILL SHEAR WALL/LONGITUDINAL FRAME PLAN SHEET

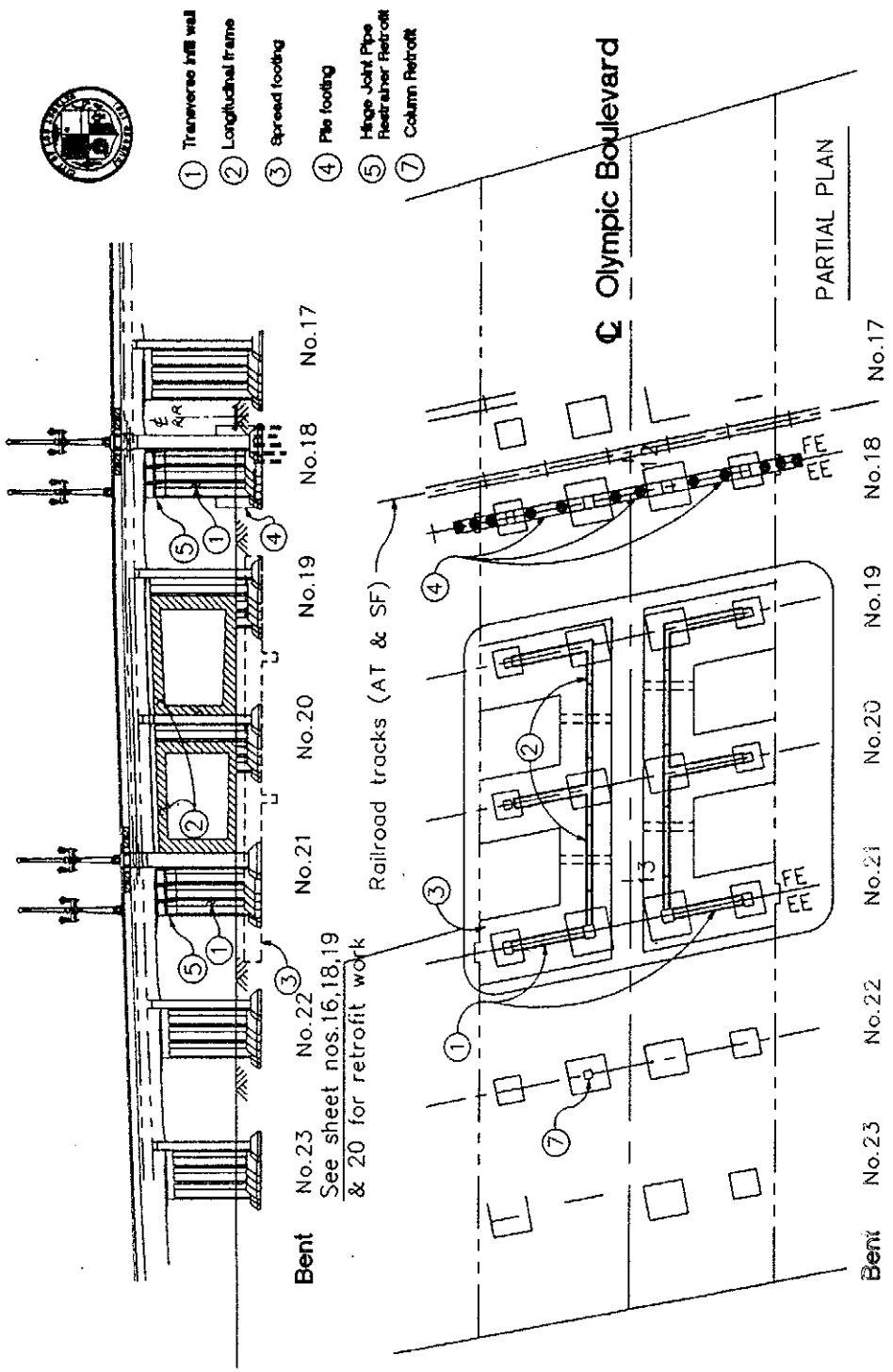

FIGURE 7 - HISTORIC HANDRAIL REPLICATION PLAN SHEET